

**Translation**

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY EXAMINATION REPORT**

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference T 73450 WO	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP98/06255	International filing date (day/month/year) 01 October 1998 (01.10.98)	Priority date (day/month/year) 01 October 1997 (01.10.97)
International Patent Classification (IPC) or national classification and IPC B66B 11/00		
Applicant WITTUR AUFZUGTEILE GMBH & CO.		

<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>4</u> sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of <u>6</u> sheets.</p>	
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the report</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input checked="" type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>	

Date of submission of the demand 07 April 1999 (07.04.99)	Date of completion of this report 20 December 1999 (20.12.1999)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP98/06255

## I. Basis of the report

1. This report has been drawn on the basis of *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.)*:

- ☐ the international application as originally filed.
- ☒ the description, pages 3-11, as originally filed,  
 pages \_\_\_\_\_, filed with the demand,  
 pages 1,2,2a, filed with the letter of 28 September 1999 (28.09.1999),  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_.
- ☒ the claims, Nos. \_\_\_\_\_, as originally filed,  
 Nos. \_\_\_\_\_, as amended under Article 19,  
 Nos. \_\_\_\_\_, filed with the demand,  
 Nos. 1-18, filed with the letter of 28 September 1999 (28.09.1999),  
 Nos. \_\_\_\_\_, filed with the letter of \_\_\_\_\_.
- ☒ the drawings, sheets/fig 1/20-20/20, as originally filed,  
 sheets/fig \_\_\_\_\_, filed with the demand,  
 sheets/fig \_\_\_\_\_, filed with the letter of \_\_\_\_\_,  
 sheets/fig \_\_\_\_\_, filed with the letter of \_\_\_\_\_.

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/fig \_\_\_\_\_

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

4. Additional observations, if necessary:

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.  
PCT/EP 98/06255

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

Novelty (N)	Claims	1-18	YES
	Claims		NO
Inventive step (IS)	Claims	1-18	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-18	YES
	Claims		NO

### 2. Citations and explanations

- Document US-A-3880258 is considered to be the closest prior art and discloses a lift comprising a drive mechanism, which lifts and lowers a lift car and a counterweight. Said lift car is located and guided inside a self-supporting shaft structure.

The subject matter of Claim 1 differs therefrom in that the guide elements for the car and counterweight form the vertical supports of the shaft structure and also in that assembly frames connected to the guide elements form the horizontal supports. Consequently, the subject matter of Claim 1 appears to be novel (PCT Article 33(2)).

The problem to be solved can be seen as that of producing a modular self-supporting shaft structure that is economical to assemble.

Documents US-A-3880258, DE-A-2054936 and DE-A-2651566 disclose shaft structures or shaft constructions in which the guide elements do not have a supporting function. Figure 8 of document EP-A-0767134 discloses a construction comprising supporting guide rails, but this construction per se

is not self-supporting since it is to be installed in an existing shaft. Therefore, the available prior art does not suggest the present invention. Consequently, the subject matter of Claim 1 appears to be inventive (PCT Article 33(3)).

2. Claims 2 to 18 are dependent on Claim 1 and therefore also meet the PCT requirements for novelty and inventive step.

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP98/06255

## VI. Certain documents cited

### 1. Certain published documents (Rule 70.10)

Application No.  
Patent No.

Publication date  
(day/month/year)

Filing date  
(day/month/year)

Priority date (valid claim)  
(day/month/year)

### 2. Non-written disclosures (Rule 70.9)

Kind of non-written disclosure

Date of non-written disclosure  
(day/month/year)

Date of written disclosure  
referring to non-written disclosure  
(day/month/year)

See annex

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP 98/06255

**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: VI

Document: EP-A-0846645,  
priority: 03.12.1996,  
date of publication: 10.06.1998.

## CABLE/ROPE ELEVATOR

The present invention pertains to cable elevators as described in the preamble of patent claim 1.

Elevator apparatuses in which the elevator cabin is lifted or lowered using cables are sufficiently known. A common way of action therein lies in arranging the required elements, like guide rails for the elevator cabin as well as deflection sheaves for the ropes and the like, within an elevator shaft. This way of action not only is expressively expensive since a plurality of individual elements has to be transferred to the respective mounting position and there to be individually arranged and connected to the remaining elements of the elevator, but simultaneously is essentially unsuited for the subsequent equipping of old houses with elevator systems, as no elevator shafts do exist in which the individual elements of the elevator system to be installed could be arranged.

It, therefore, is the object of the present invention to create an elevator apparatus which is independent from an elevator shaft provided for in a building, which is simple in manufacturing as well as simple and economical in mounting and maintenance and which in particular also is flexible in arrangeability of the drive for e.g. answering the most different demands in installation in modernization projects.

This object is solved by the characterizing features of patent claim 1, preferred embodiments being described by the subclaims.

An elevator system is provided for, in which the essential elements for operating the elevator, including the cable guides, deflector sheaves and drives are combined in modular-shaped mounting frames. In accordance with the present invention, these mounting frames therein can be connected to a self-supporting shaft scaffold which can be supported on a house wall. Simultaneously, such a self-supporting shaft scaffold for the elevator can serve as support element for a protective covering by sheathing plates being mounted thereon. The module-shaped mounting elements therein preferably are delivered to the mounting place as pre-assembled complete units and are combined there only. Nevertheless, the module-shaped mounting elements permit to mount the drive and the cable sheaves in particular in most different manner within the shaft cross-section surrounded by the module-shaped mounting elements as well as from outside on the module-shaped mounting elements.

In accordance with the invention, said mounting units therein can be connected to form a self-supporting shaft scaffold which can be supported on a house wall. Simultaneously, such a self-supporting shaft scaffold can serve as support element for a shaft cover for the elevator by mounting sheathing plates on it. The module-shaped mounting elements therein preferably are de-



livered to the mounting place as pre-assembled complete units and are combined there only.

Further features and advantages of the present invention result from the following description of the attached drawing, wherein:

Fig. 1 is a top view onto an embodiment of the present invention with two disc engines located on bottom;

Fig. 2 is a side view of the embodiment shown in Fig. 1;

Fig. 3 is a top view onto another embodiment of the present invention with gear;

Fig. 4 is a top view onto another embodiment of the present invention with gear;

Fig. 5 is a top view onto another embodiment of the present invention;

Fig. 6 is a detailed view of a cable sheave in accordance with one of the embodiments of Figs. 1 to 5 with integrated disc brake;

Fig. 7 is a detailed side view of a cable sheave in accordance with one of the embodiments of Figs. 1 to 5 with integrated emergency brake; and

Fig. 8 is a top view onto the cable sheave of Fig. 7;

Fig. 9 is the schematic view of an embodiment of an elevator with a drive disposed in the elevator shaft;

Fig. 10 is a top view onto the embodiment of Fig. 9;

Figs. 11 and 12 are schematic side views of further embodiments;

Fig. 13 is a detailed view of a drive unit as used in the embodiments under Figs. 1 to 4, and

Figs. 14 to 17 are further embodiments of elevators with drive units located in the elevator shaft, of another kind than that shown in Figs. 1 to 13.

Fig. 1 shows a top view onto an embodiment of the present invention, in which an elevator cabin 1 provided with sliding doors 2, arranged and guided within a self-supporting shaft scaffold consisting of vertically extending segmented guide elements 3 for said cabin 1, also vertically extending segmented guide elements 4 for a counterweight 5 and as well as of module-shaped mounting frames 6 preferably manufactured of sheets bent in U-shape and open to bottom, by which said guide elements 3 and 4 can be connected, preferably screwed or welded together. Said mounting frames 6 therein can be located in arbitrary vertical position on said guide elements 3 and 4, on the intersecting points of the individual segments of said vertical guide elements in particular for connection thereof. At or in said module elements 6, driving disks 7 as well as cable sheaves 8 and 9 can be pre-assembled, which serve for driving and guiding the cable or flat band (not shown) required for lifting and lowering said elevator cabin 1. In the embodiment shown in Fig. 1 the two opposing driving disks 7 are made rotate using a full floating axle (not shown) or hollow shaft, which can be embodied with gear, without gear, as ring en-